

COASTAL CONSERVANCY

Staff Recommendation  
December 3, 2009

**SEA OTTER RECOVERY PROJECT  
COASTAL CONTAMINANTS AND ANTHROPOGENIC STRESSORS STUDY  
PHASE II**

Project No. 08-079-02  
Project Manager: Neal Fishman

**RECOMMENDED ACTION:** Consideration and possible authorization to provide up to \$94,250 to the Regents of the University of California, Santa Cruz Campus, to undertake Phase II of a study to identify the impacts of coastal contaminants and anthropogenic stressors on southern sea otter recovery

**LOCATION:** Southern Monterey Bay and near shore waters off the Big Sur coast, Monterey County, California (Exhibit 1: Project Location and Site Photographs).

**PROGRAM CATEGORY:** Coastal and Marine Resources

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**EXHIBITS**

Exhibit	1: <a href="#">Project Location and Sites</a>
Exhibit	2: <a href="#">Study Photographs</a>
Exhibit	3: <a href="#">Letter from California Department of Fish &amp; Game</a>
Exhibit	4: <a href="#">Letter from Regional Water Quality Control Board</a>
Exhibit	3: <a href="#">Project Letters</a>

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**RESOLUTION AND FINDINGS:**

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31220 *et seq.* of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes the disbursement of up to ninety four thousand two hundred fifty dollars (\$94,250) to the Regents of the University of California, Santa Cruz Campus (UCSC), to undertake Phase II of a study to identify the impacts of coastal contaminants and anthropogenic stressors on southern sea otter recovery, subject to the condition that, prior to the disbursement of any funds, UCSC shall submit for the review and written approval of the Executive Officer of the Conservancy a work program, including scope of work, budget and schedule.”

Staff further recommends that the Conservancy adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with the current Project Selection Criteria and Guidelines.
2. The proposed authorization is consistent with the purposes and objectives of Chapter 5.5 of Division 21 of the Public Resources Code, regarding Coastal and Marine Resource Protection.”

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#### PROJECT SUMMARY:

This project is the second phase of a study investigating the impact of coastal contaminants and anthropogenic (human-caused) stressors on southern sea otters (also known as California sea otters) and to identify factors preventing population growth.

A subspecies of *Enhydra lutris*, the southern sea otter (*Enhydra lutris nereis*) once inhabited coastal waters from southern Oregon down into Baja. Hunted extensively for their luxuriant fur, by the early 20th century the historic population of approximately 16,000 animals was all but eliminated. Believed to be extinct, a small group of animals was re-discovered off the Big Sur coast in 1938. Since then, various protective measures, including the listing of the southern sea otter as threatened on the federal endangered species list, have been implemented, allowing the population to expand to about 2,700 animals. In recent years, however, population growth has stagnated, with no recorded increases since 2004. Numbers must expand to a minimum of 3,100 animals before resource agencies may consider removing the southern sea otter from the endangered species list, but available habitat could potentially support a population closer to that of historic levels.

The reasons for the stagnation of the southern sea otter population are unknown. To help identify factors that might be contributing to this phenomenon, and utilizing monies from the tax check-off Sea Otter Recovery Program, in September, 2008 the Conservancy approved a grant to UCSC to carry out a study focused on coastal contaminants and anthropogenic stressors that may be inhibiting population growth. Two study populations were identified, one in southern Monterey Bay, the other in near shore waters of Big Sur. These locations were selected to enable biologists to compare the health and condition of animals from relatively contaminated ocean waters where agricultural, industrial and residential land uses in the watershed are known to affect water quality (Monterey Bay), as opposed to those of more pristine waters where human activities in the watershed are more limited (Big Sur).

The first phase of the study has been completed (Exhibit 2: Study Photographs). It consisted of the capture and study of twenty-five sea otters from the Big Sur area, and thirty from Monterey Bay. The captures were conducted in the most sensitive manner possible, using scuba divers and nets. The animals were anesthetized and transported to the veterinary lab at UCSC where they were weighed and tagged. Tissue samples were taken and radio devices were implanted before the animals were returned to their home waters. The entire operation lasted only a few hours, minimizing stress on the otters.

Following release, the otters are tracked using state-of-the-art VHF telemetry equipment. GPS locations, survival and reproduction are recorded daily, and powerful scopes allow visual observations of diet and foraging behavior, detailed habitat use and activity patterns. To date, over 3,000 observations of Big Sur sea otters have been made, and about 2,500 of the Monterey Bay population. When radio transmitters signal mortality, the body is collected and analyzed to identify factors contributing to the animal's death, such as viruses, parasites, and/or chemical toxins.

Tissue samples taken during capture are evaluated to establish specific genetic bio-markers that are known indicators of lethal pathology. So far, the data has shown that there are a greater number of such bio-markers in the Monterey population than in Big Sur, an indication that more polluted waters are likely having a greater impact on sea otter disease and mortality. It has also been determined that females have a higher mortality rate than males, posing a significantly greater threat to reproductive success.

This project, the second phase of the study, will continue this work. Additional animals will be captured in each location including several of the original otters to monitor on-going health. Gene analyses will be completed for all otters to determine potential predictors for mortality. Blood and liver biopsies will be also conducted. A report will be prepared describing the results of the study and analysis, and suspected factors limiting population growth.

Data from the study will be available to resource managers to help develop policies conducive to sea otter population growth. Some of these may involve establishing specific water quality parameters; others may consist of translocations of sea otters to other parts of the central coast where suitable habitat is not currently occupied.

As a sentinel species in the marine food chain, sea otters reflect the overall health of the environment they inhabit. While the primary focus of the study is the support of a more vigorous sea otter recovery, it is likely that any management strategies developed as the result of this study will improve the overall marine environment of California's central coast.

UCSC operates the Long Marine Lab and will continue to utilize this resource for data analyses and other aspects of the study. The study team consists of experts in ecology, evolutionary biology and marine wildlife and includes researchers from both U.C. Santa Cruz and U.C. Davis, as well as the Department of Fish & Game, the U.S. Geological Survey and the Monterey Bay Aquarium.

**Site Description:** Although historically ranging all the way from Oregon to Baja, southern sea otters are currently found only from Pt. Conception in Santa Barbara County to just below Half Moon Bay in San Mateo County. Inhabiting rocky, sandy, and mixed shores, they are most

common in near shore areas with large kelp beds. They are generally found in water depths of sixty-five feet or less, facilitating foraging along the ocean floor.

For purposes of this study, animals from two central coast populations will be captured, one in the waters of southern Monterey Bay, the other off shore of Big Sur. To a large extent, water quality in each area reflects on shore land uses, with the watershed of Monterey Bay more intensively developed than the Big Sur coast. Agricultural uses in the Bay watershed consist of both irrigated crops and livestock operations, contributing fertilizer, pesticides, eroded sediments and animal waste to run-off. Residential and commercial development in and around the City of Monterey and other towns contributes run-off from streets and other hard surfaces, as well as eroded sediments from construction sites. The Big Sur landscape is substantially more rural, with the predominant land use being large cattle ranches and expansive public lands, and off-shore pollutants are less prevalent.

**Project History:** Southern sea otter recovery has been an important issue ever since the unexpected discovery of about fifty animals off shore of Big Sur in 1938. Formerly considered extinct as the result of relentless pursuit by fur traders, in the last several decades southern sea otters have been the focus of numerous protective measures, most importantly the Marine Mammal Protection Act of 1972 and the listing of the animal as threatened under the federal endangered species list in 1977. In 1982, the U.S. Fish & Wildlife Service (USFWS) released a southern sea otter recovery plan, anticipating that the population could eventually reach 13,000 animals, close to the 16,000 animals that once inhabited off-shore waters from southern Oregon to northern Baja.

As anticipated, southern sea otters rebounded once regulations were in place. By the mid part of the present decade, the population had reached 2,700 animals, and resource agencies believed numbers would soon expand to at least 3,100, the number required to be considered for de-listing. Then, in 2004, growth of the sea otter population unexpectedly ceased, remaining stagnant ever since.

In 2006, the California legislature approved AB 2485 which, among other provisions, creates the California sea otter tax check-off fund, allowing taxpayers to easily designate monies to fund sea otter recovery. Responding to increased concerns about population stagnation, and aware that studies had identified various pathogens resulting from on-shore human activities as potentially responsible for early mortality, in September, 2008, the Conservancy funded a UCSC-initiated study to evaluate the impact of coastal contaminants and anthropogenic stressors on the sea otter. This study is the first of its kind to compare data collected from otters that inhabit two separate marine environments, one relatively more polluted than the other.

To date, UCSC biologists have studied fifty-five sea otters from Monterey Bay and Big Sur, recovered tissue samples and blood, and implanted the animals with radio transmitters to allow tracking following release. The second phase of the study, the subject of this staff recommendation, will continue this work using newly captured animals. A report detailing the results of the study and analysis will be made available to resource agencies, most importantly, the U.S. Fish & Wildlife Service and the Regional Water Quality Control Board, to allow the development of measures to enhance water quality and expand the sea otter population.

## PROJECT FINANCING

## Coastal Conservancy:

Phase II (this project)	<b>\$94,250</b>	
Phase I	<b>224,980</b>	<b>\$319,230</b>

### Other Funders (Phases I & II):

U.S. Geological Survey	180,000	
Department of Fish & Game	100,000	
Monterey Bay Aquarium	220,000	
U.C. Davis	25,000	\$525,000

**TOTAL PROJECT COSTS: \$844,230**

The anticipated source of Conservancy funds for this project is the fiscal year 2009-2010 appropriation from the California Sea Otter Fund. Established in 2006, the California Sea Otter Fund is an income tax check-off program allowing taxpayers to dedicate funds to facilitate sea otter recovery. The funds may be used for research and programs related to improving the near-shore ocean ecosystem, including, but not limited to program activities to reduce sea otter mortality. Funds may also be used to address pathogens that may be harming sea otters, as well as water treatment technologies. (Revenue & Tax Code Section 18752(c)). This project is consistent with the requirements of the California Sea Otter Fund in that it will focus on the impact of contaminants and other anthropogenic stressors on southern sea otters in order to identify management strategies to counter such impacts.

**CONSISTENCY WITH CONSERVANCY’S ENABLING LEGISLATION:**

This project would be undertaken consistent with Division 21, Chapter 5.5 (Coastal and Marine Resources) of the Conservancy's enabling legislation (California Public Resources Code Section 31220).

Pursuant to Section 31220, the Conservancy may award grants to public agencies for the purpose of undertaking coastal and marine water quality projects. Under Section 31220 of the Public Resources Code, the Conservancy may undertake water quality and living marine resource protection projects that meet any of the objectives specified in subsection (b) of that section. Consistent with Section 31220(b)(5), the proposed project will provide for monitoring of marine wildlife to facilitate the protection and enhancement of resources within the coastal zone. The watersheds of Monterey Bay and Big Sur are within the coastal zone. Also consistent with this section, the project will result in the completion of a study to identify impacts of contaminants and anthropogenic stressors on sea otter health and mortality with the goal of reducing such impacts.

The Department of Fish and Game (CDFG) has been consulted with regard to this project, as

required by Section 31220(b)(5) and concurs that the study and resulting data analysis will inform specific conservation-action recommendations related to sea otter population growth and ocean health (Exhibit 3: Letter from CDFG). Additionally, CDFG has entered into a Memorandum of Understanding with UCSC permitting research on this state species of special concern.

As required by 31220 (a) and (c) the project is consistent with adopted state and regional watershed plans as described below under “Consistency with Local Watershed Management Plan/State Water Quality Control Plan.” Conservancy staff has consulted with the State Water Resources Control Board (RWQCB) in the development of this project in order to ensure consistency with the Clean Beaches Program under Chapter 3 of Division 20.4 of the Public Resources Code (See Exhibit 4: Letter from RWQCB).

**CONSISTENCY WITH CONSERVANCY’S 2007  
STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):**

Consistent with **Goal 6, Objective 6A** of the Conservancy’s 2007 Strategic Plan, the proposed project will result in the completion of a study to evaluate the effect of nonpoint source pollutants on sea otter health and mortality to enable informed planning for watershed improvements that will contribute to sea otter recovery.

**CONSISTENCY WITH CONSERVANCY’S  
PROJECT SELECTION CRITERIA & GUIDELINES:**

The proposed project is consistent with the Conservancy’s Project Selection Criteria and Guidelines, last updated on June 4, 2009, in the following respects:

**Required Criteria**

1. **Promotion of the Conservancy’s statutory programs and purposes:** See the “Consistency with Conservancy’s Enabling Legislation” section above.
2. **Consistency with purposes of the funding source:** See the “Project Financing” section above.
3. **Support of the public:** This project is supported by the University of California, Congressman Sam Farr, Assemblymen Dave Jones, the Marine Mammal Commission, the California Regional Water Quality Control Board, the Department of Fish & Game, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, Monterey Bay Aquarium, Defenders of Wildlife, the Ocean Public Trust Initiative, Friends of the Sea Otter, and the Central Coast Long-Term Environmental Assessment Network. Project letters are attached as Exhibit 5.
4. **Location:** The study area is offshore within southern Monterey Bay and Big Sur, Monterey County. Both the watersheds of Monterey Bay and Big Sur are within the Coastal Zone.

5. **Need:** Funds for this project will be derived from monies appropriated to the Conservancy from the Sea Otter Recovery Fund, as well as many other supporters. On its own, UCSC does not have sufficient funds to undertake this study.
6. **Greater-than-local interest:** The southern sea otter is a federally listed threatened species. Like all threatened and endangered species, the otter's recovery is of great significance, both from a biological and cultural perspective. As a sentinel species in the food chain, the sea otter is a measure of the entire marine ecosystem. Thus, sea otter recovery is an important component of marine resource restoration and protection overall. Additionally, because of its preferred habitat in near shore kelp beds, and its habit of feeding on the surface of the water, the sea otter is highly visible from the shore. Wildlife viewing opportunities such as this attract millions of tourists. The southern sea otter exhibit at the Monterey Bay Aquarium is one of the most popular in the facility, revealing the high level of public interest in this animal.
7. **Sea level rise vulnerability:** The project is a research project that will not be affected by sea level rise considerations.

#### **Additional Criteria**

8. **Urgency:** The southern sea otter is not rebounding to levels once anticipated by resource agencies, making it the subject of great concern. If current trends continue, full recovery will be jeopardized. This study is an important step in determining the cause of sea otter population stagnation.
9. **Leverage:** See the "Project Financing" section above.
10. **Innovation:** A side-by-side comparison of the health of two California sea otter populations, one in a relatively clean environment, the other in a more contaminated one, has never been undertaken before. Using state of the art monitoring technology, UCSC biologists will examine sea otter health at an unprecedented level of detail.
11. **Readiness:** UCSC and other team members are ready to move forward with the second phase of this study. All necessary permits have been obtained.
12. **Cooperation:** This project is a cooperative effort between many resource agencies and organizations focusing on sea otter health and recovery.
13. **Minimization of greenhouse gas emissions:** This research project is not expected to have any long term green house gas emissions. The project has the potential to generate short-term greenhouse gas emissions associated with vehicles used by commuting research workers and trucks hauling equipment that would generate and emit exhaust emissions, but these emissions would be limited, and not cumulatively significant.

#### **CONSISTENCY WITH LOCAL WATERSHED MANAGEMENT PLAN/ STATE WATER QUALITY CONTROL PLAN:**

In a letter dated May 15, 2008, Roger Briggs, Executive Officer of the California Regional Water Quality Control Board, Central Coast Region, states: "The information gained from [a study of the consequences of coastal contamination and anthropogenic stressors for sea otter

recovery]...will undoubtedly advance our understanding of threats impacting ocean health and provide science-based solutions for proper stewardship of our oceans. The Central Coast Regional Water Quality Control Board is charged with regulating sources of discharge to surface and ground water in the Central Coast. The proposed research activities will help us understand how best to regulate discharges in a way that will reduce impacts of these stressors to marine mammals and to protect the overall health of ocean waters.... The proposed project will provide important data for making wise decisions associated with regulatory and management programs for protection of water quality.” Data gathered from this study will be used to inform plans addressing nonpoint source contaminants in central coast marine environments. (Exhibit 4: Letter from RWQCB)

#### **COMPLIANCE WITH CEQA:**

The proposed project is categorically exempt from review under the California Environmental Quality Act (CEQA) pursuant to 14 California Code of Regulations § 15306, which exempts basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious major disturbance to an environmental resource as part of a study leading to an action which the Conservancy has not yet approved, adopted or funded. This project will not result in a major disturbance to sea otters as evidenced by the review process outlined below.

Although the southern sea otter is a federally listed threatened species, the relevant regulatory agencies have determined that this research study will not result in a serious major disturbance to the animal; and thus the exception to Category 6 exemptions such as 14 Cal Code Regs. § 15306, does not apply in this case. The wildlife agencies have approved all necessary permits for the project to proceed. Specifically, the U.S. Fish & Wildlife Service has issued a “Recovery Permit” for this study, which allows the capturing, handling, instrumentation, bio-sampling and observation of wild sea otters. The USFWS considers the permit issuance to qualify for a categorical exclusion under the National Environmental Protection Act, per Department of Interior Guidelines. Upon approval, staff will file a Notice of Exemption for this project.



Exhibit 2: December 3, 2009 Staff Recommendation

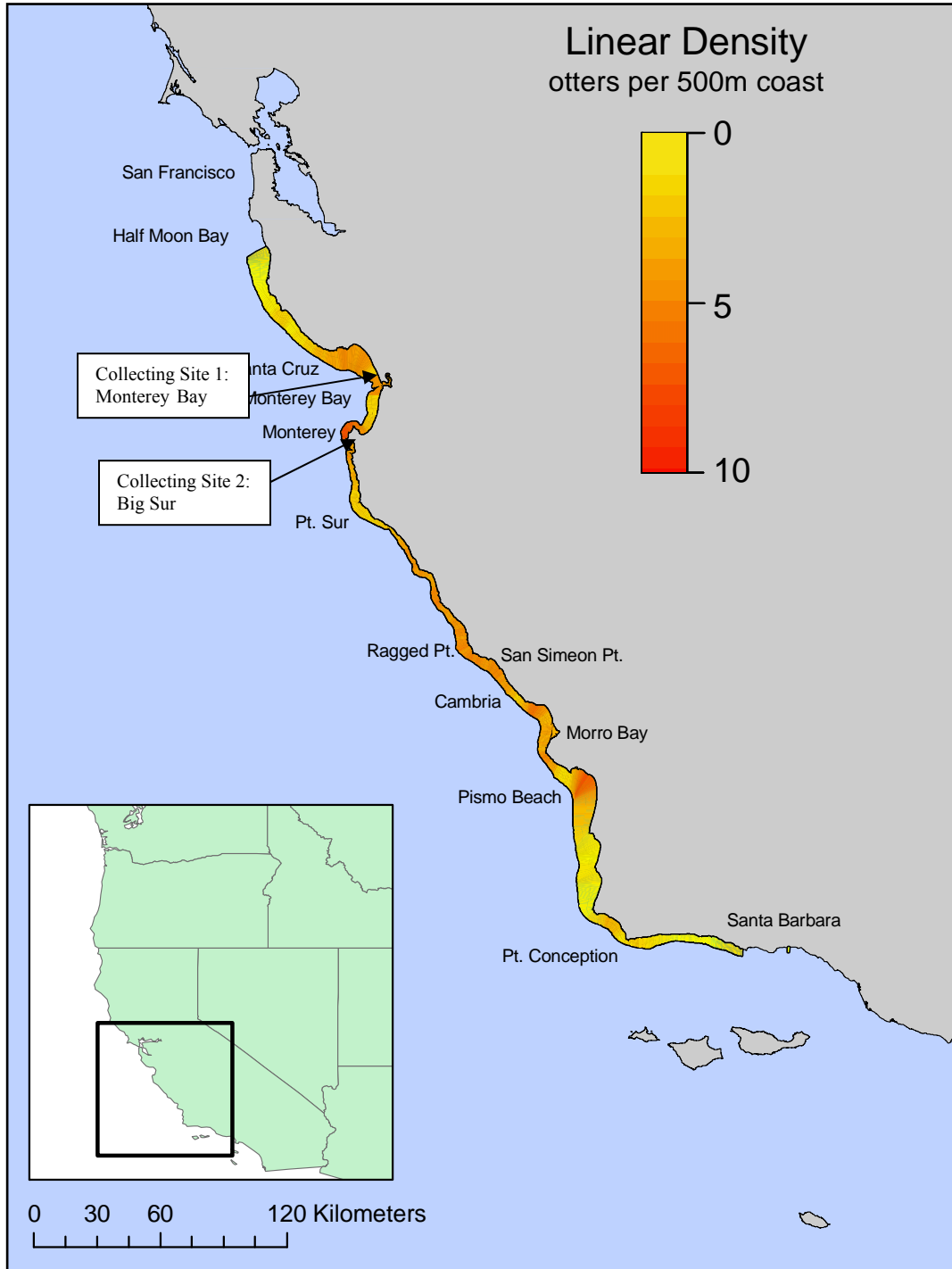


Exhibit 2: December 3, 2009 Staff Recommendation



Southern Monterey Bay



Big Sur

Exhibit 2: December 3, 2009 Staff Recommendation





DEPARTMENT OF FISH AND GAME

<http://www.dfg.ca.gov>

Office of Spill Prevention and Response

1700 K Street, Suite 250

Sacramento, CA 95811

(916) 445-9338

Exhibit 2: December 3, 2009 Staff Recommendation



May 16, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
1330 Broadway, 13<sup>th</sup> Floor  
Oakland, CA 94612

Dear Mr. Schuchat:

The California Department of Fish and Game Office of Spill Prevention and Response, supports the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery" to be funded by monies from the State Tax check off. The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

If you have any further questions please contact me at (916) 324-7629 or via e-mail at [djessup@ospr.dfg.ca.gov](mailto:djessup@ospr.dfg.ca.gov).

Sincerely,

Bud Leland

Deputy Administrator

Office of Spill Prevention and Response

cc: Dr. Dave Jessup

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MAY 21 2008

COASTAL CONSERVANCY  
OAKLAND, CALIF.



**California Regional Water Quality Control Board**  
**Central Coast Region**



**Linda S. Adams.**

*Secretary for  
Environmental Protection*

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906

(805) 549-3147 • Fax (805) 543-0397

<http://www.waterboards.ca.gov/centralcoast>

**Arnold Schwarzenegger**

*Governor*

May 15, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

Sea otters have recognized value as sentinels of ocean health because of their exposure to near-shore anthropogenic activities along the California coast and their tractability to detailed observational studies. The information gained from the proposed research activities will undoubtedly advance our understanding of threats impacting ocean health and provide science-based solutions for proper stewardship of our oceans. The Central Coast Regional Water Quality Control Board is charged with regulating sources of discharge to surface and ground water in the Central Coast. The proposed research activities will help us understand how best to regulate discharges in a way that will reduce impacts of these stressors to marine mammals and to protect the overall health of ocean waters. We have already made use of findings associated with past research on related topics to inform our storm water outreach programs and NPDES permit monitoring decisions. The proposed project will provide important data for making wise decisions associated with regulatory and management programs for protection of water quality.

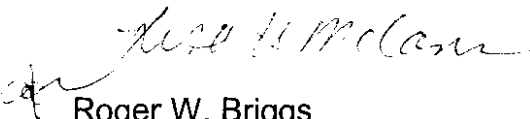
Mr. Sam Schuchat

- 2 -

May 15, 2008

Please contact Karen Worcester of my staff at (805) 549-3333  
(kworcester@waterboards.ca.gov) if you have questions.

Sincerely,

  
Roger W. Briggs  
Executive Officer

cc:

Dr. Dave Jessup, DVM  
Marine Wildlife Veterinary Care and Research Center  
Calif. Dept. Fish and Game and  
University of California at Davis  
1451 Shaffer Road  
Santa Cruz, CA 95060

Andrew B. Johnson  
Program Manager  
Sea Otter Research and Conservation (SORAC)  
Monterey Bay Aquarium  
886 Cannery Row  
Monterey, CA 93940

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<http://www.vetmed.ucdavis.edu/whc>

ONE SHIELDS AVENUE  
DAVIS, CALIFORNIA 95616-8734

April 28, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

Please accept this letter as a show of our enthusiastic support for the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." This project takes the critical next step necessary to improve our understanding of the impacts of coastal change on ocean health and sea otter population health. Funding from the California Sea Otter Fund will provide the financial support necessary for this important project, and we are fully committed to providing our expertise and our resources in the fields of epidemiology and protozoal pathogen ecology to ensure project success. The proposed work seeks to elucidate processes promoting disease in the near shore marine ecosystem and will inform on specific conservation-action recommendations to promote sea otter recovery and improve ocean health. Sea otters have proven to be an excellent sentinel of the impacts of coastal change on ecosystem health, and this work will build on the California Coastal Conservancy's legacy of restoration and ocean protection by providing important direction for ecosystem management.

Respectfully,

A handwritten signature in cursive script, appearing to read "Christine K Johnson".

Christine K Johnson, VMD, PhD

A handwritten signature in cursive script, appearing to read "Jonna AK Mazet".  
Jonna AK Mazet, DVM, PhDA large, stylized handwritten signature in cursive script, appearing to read "Patricia A Conrad".  
Patricia A Conrad, DVM, PhD  
Wildlife Health Center  
School of Veterinary Medicine  
University of California  
Davis, California 95616

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COASTAL CONSERVANCY  
OAKLAND, CALIF.

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DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY

SANTA CRUZ, CALIFORNIA 95064

1 May, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I am writing to encourage the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific sources of land-based contaminants or routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

Please contact me if you have any questions.

Sincerely,

James A. Estes  
Professor  
Director, STEPS Institute



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April 10, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health. Big Creek Reserve is currently developing a research program that focuses on land-sea connectivity. We would look forward to assisting the proposed work through logistical support along the Big Sur coast as well as having the opportunity to collaborate and share knowledge.

Please contact me if you have any questions.

Best regards,  
Mark Readdie, Ph.D.  
Resident Director  
Landels-Hill Big Creek Reserve  
University of California at Santa Cruz

SAM FARR  
17TH DISTRICT, CALIFORNIA

Exhibit 2: December 3, 2009 Staff Recommendation

1221 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515-0517  
(202) 225-2861

100 WEST ALISAL  
SALINAS, CA 93901  
(831) 424-2229

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**Congress of the United States**  
**House of Representatives**  
**Washington, DC 20515-0517**

May 16, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

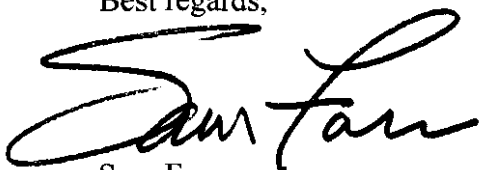
As a champion of the oceans and a lifelong resident of the Central Coast, I urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery."

For years, I and my staff have worked to assist the U.S. Geological Survey, U.S. Fish and Wildlife Service, California Dept. of Fish and Game, U.C. Davis, the Monterey Bay Aquarium, the University of California, Santa Cruz and other organizations engaged in the research and recovery of the southern sea otter. This multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work. This analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

I have relied on the expertise of the members of this team and recently Dr. Jim Estes and Andy Johnson, testified as expert witnesses before the House Natural Resources Subcommittee on Fisheries, Wildlife, and the Oceans on my bill, the Southern Sea Otter Recovery and Research Act and on the critical research and management necessary to aid in the recovery of the southern sea otter. While I will continue to work to help provide a Federal mandate and funding to help sea otter recovery, the project you have before you will help inform all of us on how best to assist in the recovery of this subspecies and to improve the health of our nearshore ecosystems in California.

Please contact my office if you have any questions.

Best regards,



Sam Farr  
Member of Congress

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COASTAL CONSERVANCY  
OAKLAND, CALIF.

Exhibit 2: December 3, 2009 Staff Recommendation

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SUBCOMMITTEE

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P.O. BOX 942849  
SACRAMENTO, CA 94249-0009  
(916) 319-2009  
FAX (916) 319-2109DISTRICT OFFICE  
915 L STREET, SUITE 110  
SACRAMENTO, CA 95814  
(916) 324-4676  
FAX (916) 327-3338E-MAIL:  
assemblymember.jones@assembly.ca.govWEB:  
www.assembly.ca.gov/jones

May 30, 2008

Sam Schuchat, Executive Officer  
State Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I am writing to urge the State Coastal Conservancy approve grant funds from the California Sea Otter Fund to support the research project, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery."

The multi-disciplinary and multi-institutional team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations that should encourage sea otter population growth and improve ocean health.

As such, as hope the Conservancy can act to fund this proposal and help meet the vision we had when we passed Assembly Bill 2485 (Jones and Laird). Californians want to help this iconic species thrive in our nearshore coastal environment and this research proposal will help with that goal.

For these reasons, I fully support their grant request.

Sincerely,

  
**Dave Jones**  
Assemblymember, District 09

**MARINE MAMMAL COMMISSION**  
4340 EAST-WEST HIGHWAY, ROOM 700  
BETHESDA, MD 20814-4447

30 April 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I write to support a proposal being submitted to you by M.T. Tinker et al. for "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." I do not know about other proposals soliciting support from the California Sea Otter Fund, so I cannot weigh their relative merits. That being said, the proposed study is potentially very useful and informative, and worthy of your consideration.

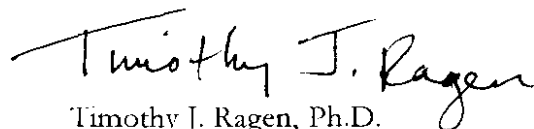
The investigators for this proposal are all highly accomplished scientists with well-deserved, excellent reputations for their research on sea otters, contaminants, and disease. Collectively, their work in California coastal areas has provided insights into sea otter status and ecology that are at the cutting edge of applied marine mammal research. They have taken a multi-disciplinary approach, bringing together a mix of research tools from veterinary medicine, ecology, biology, physiology, pathology, and demography. Their results to date have provided great insights into human/marine mammal interactions in coastal ecosystems.

The work itself is vital to understand not just the sea otter, but the broader ecology of nearshore ecosystems that may be heavily influenced by human activities. The sea otter is remarkable among marine mammals because it is a keystone species that plays a vital role in structuring nearshore ecological communities. The sea otter also is an important indicator species and, to date, sea otter research findings have raised a number of red flags regarding unintended human impacts on nearshore communities.

The work proposed by Tinker et al. is vital to bring the existing information together and provide an integrated, comprehensive perspective on sea otters, their ecological relationships, and their interactions with coastal activities. Such studies are crucial if we are to maintain healthy coastal ecosystems. With that in mind, I urge you to give careful consideration to supporting the Tinker et al. proposal.

Please contact me if I can be of assistance to you during your deliberations.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director

**RECEIVED**

MAY 02 2008

COASTAL CONSERVANCY  
OAKLAND, CALIF.

PHONE: (301) 504-0087

FAX: (301) 504-0099



U. S. Department of the Interior  
U. S. GEOLOGICAL SURVEY  
Biological Resources Division  
WESTERN ECOLOGICAL RESEARCH CENTER  
3020 State University Dr., East  
Modoc Hall, Room 3006  
Sacramento, CA 95819



April 18, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

This letter is written in strong support of the proposal being submitted by Dr. Tim Tinker et al. entitled "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery" for funds from the California Sea Otter Fund. This project addresses urgent needs to understand coastal ocean health using the southern sea otter as a "sentinel" species to assess changes in coastal ecosystems. Dr. Tinker and the other scientists submitting this proposal have impeccable scientific credentials and are the most qualified experts in the field of sea otter ecology. Collectively, they possess the knowledge, experience and commitment to accomplish the proposed work. The data resulting from this study will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health. Thus, we believe this work is critical to the future health of our coastal oceans and we support it fully.

Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven Schwarzbach", written over a white background.

Steven Schwarzbach, Center Director  
Western Ecological Research Center  
U.S. Geological Survey



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**NATIONAL OCEAN SERVICE**

**Monterey Bay National Marine Sanctuary**  
299 Foam Street  
Monterey, California 93940

April 24, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat *Sam*

I am pleased to submit this letter from the Monterey Bay National Marine Sanctuary in support of the "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery" a research proposal submitted to the Coastal Conservancy for Southern sea otter research seeking funding from the California Sea Otter Fund. This proposal addresses a high priority issue and management concern for the Monterey Bay National Marine Sanctuary.


The mission of NOAA's Monterey Bay National Marine Sanctuary is to understand and protect the coastal ecosystem of central California. Designated in 1992, the Monterey Bay National Marine Sanctuary (MBNMS) is a Federally protected marine area offshore of California's central coast. Stretching from Marin to Cambria, the MBNMS encompasses a shoreline length of 276 miles and 5,322 square miles of ocean, extending an average distance of 30 miles from shore. At its deepest point, the MBNMS reaches down 10,663 feet (more than two miles). It is our nation's eleventh Marine Sanctuary and its largest—larger than Yosemite or Yellowstone National Parks.

The MBNMS was established for the purpose of resource protection, research, education and public use. Its natural resources include extensive kelp forests, one of North America's largest underwater canyons and the closest-to-shore deep ocean environment in the continental United States. It is home to one of the most diverse marine ecosystems in the world, including 33 species of marine mammals, 94 species of seabirds, 345 species of fishes, and numerous invertebrates and plants. This remarkably productive marine environment is fringed by spectacular coastal scenery, including sandy beaches, rocky cliffs, rolling hills and steep mountains.

The southern sea otter (*Enhydra lutris nereis*) is a key player in this diverse ecosystem, whose ecological and local economic role cannot be overstated. MBNMS through the Sanctuary Integrated Monitoring Network (SIMoN) has supported several studies on sea otters, including research on nutritional constraints in Monterey Bay, contaminant sources in the region, necropsy studies, and foraging studies near Moss Landing. The proposed study by Tinker et al. builds upon these efforts and will bring us closer to understanding the population dynamics of this listed species, whose health is an indicator of overall ecosystem health.

I urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support this research project. The multi-disciplinary team, including many investigators that continue to work closely with MBNMS and SIMoN, will lead this project with the expertise and commitment to accomplish the proposed work. The resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health overall.

Sincerely,

  
PAUL MICHEL  
Superintendent  
(831) 647-4201



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MONTEREY BAY AQUARIUM\*

April 22, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

I urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

The proposed scope of research represents the kind of effort envisioned by the authors of Assembly Bill 2485 and for which the California Sea Otter Fund was established. The alliance of scientists, program managers, and conservationists working on sea otter recovery agrees that the resources available through the California Sea Otter Fund must support the proposed research project, and project investigators realize that the tax funds are critical to the project's success.

Please contact me if you have any questions.

Best regards,

A handwritten signature in cursive script that reads "Andrew B. Johnson".

Andrew B. Johnson, Program Manager  
Sea Otter Research and Conservation  
831-648-1039  
ajohnson@mbayaq.org



Exhibit 2: December 3, 2009 Staff Recommendation



**Marine Program Office**

P.O. Box 959 | Moss Landing, CA 95039 | tel 831.726.9010 | fax 831.726.9020  
[www.defenders.org](http://www.defenders.org) | [www.saveaseaotters.org](http://www.saveaseaotters.org)

April 29, 2008

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Sam Schuchat:

On behalf of Defenders of Wildlife (Defenders) and our over 200,000 members and supporters in California, we would like to urge the California Coastal Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." Defenders greatly appreciates all of the work of the Conservancy and staff to promote the California Sea Otter Fund and to take the time to participate in meetings to discuss southern sea otter research priorities and how best to use the funding that came in from California Taxpayers in 2007 and 2008.

Defenders has worked collaboratively on many levels with the great team of researchers from U.S.G.S, FWS, CDFG, U.C. Davis, the Monterey Bay Aquarium, the University of California, Santa Cruz and other agencies. This is a fantastic team that will get this project done. The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations—such as managing specific routes of land-sea pathogen transmission—that should encourage sea otter population growth and improve ocean health.

In addition, along with Dr. Jim Estes and Andy Johnson, I was asked to be an expert witness to testify before the House Resources Subcommittee on Fisheries, Wildlife, and the Oceans last week. The main issue was the bill introduced by Congressman Sam Farr ("Southern Sea Otter Recovery and Research Act"), but much of the testimony dealt with the critical research needs facing the southern sea otter and the need for this great team of scientists to move forward on various projects. The project you have before you will help inform all of us on how best to assist in the recovery of this subspecies and to improve the health of our nearshore ecosystems in California.

Please contact me if you have any questions.

Best regards,

**National Headquarters**

1130 17th Street, N.W.  
Washington, D.C. 20036-4604  
tel 202.682.9400 | fax 202.682.1331

OCEANS PUBLIC TRUST INITIATIVE



a Project of Earth Island Institute's  
International Marine Mammal Project

April 21, 2008

Mr. Sam Schuchat, Executive Officer  
California Coastal Conservancy  
1330 Broadway, 13<sup>th</sup> Floor  
Oakland, CA 94612

Dear Mr. Schuchat:

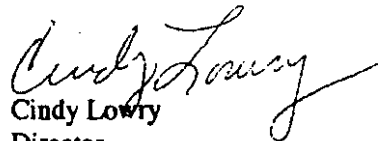
I am writing to you on behalf of the Oceans Public Trust Initiative (OPTI,) a project of Earth Island Institute's International Marine Mammal Project. OPTI's mission is to ensure that state and federal governments undertake the action necessary to ensure that ocean and coastal areas are managed consistent with the public trust.

We urge the Conservancy to direct money from the California Sea Otter Fund to support the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery."

The multi-disciplinary team that has been assembled to lead this project possesses the expertise and commitment to accomplish the proposed work and the resulting data analysis will inform specific conservation-action recommendations. It is our belief that the end result of this research will help to increase the sea otter population and improve ocean health.

Please let me know if you have any questions.

Sincerely,

  
Cindy Lowry  
Director

April 20, 2008

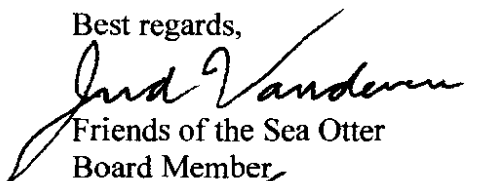

Sam Schuchat, Executive Officer  
California Coastal Conservancy  
13th Floor, 1330 Broadway  
Oakland, CA 94612

Dear Mr. Schuchat:

On behalf of Friends of the Sea Otter, I am writing to support the funding request for the research project proposal titled, "Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery." Friends of the Sea Otter has been a leading advocate of science-based conservation efforts for this species for over 40 years, and the proposed project would investigate important issues that should be answered to promote recovery. The multi-disciplinary team that will lead this project possesses the expertise and commitment to accomplish the proposed work, and the resulting data analysis will inform specific conservation-action recommendations – such as managing routes of land-sea pathogen transmission – that should encourage sea otter population growth and improve ocean health. For this reason, Friends of the Sea Otter supports the use of money from the California Sea Otter Fund for the proposed project.

Please contact me if you have any questions. Thank you.

Best regards,

  
Friends of the Sea Otter  
Board Member  


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APR 24 2008  
COASTAL CONSERVANCY  
OAKLAND, CALIF.



CENTRAL COAST LONG-TERM ENVIRONMENTAL ASSESSMENT NETWORK

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P.O. BOX 8346 • SANTA CRUZ • CA • 95061-4836 • 831.426.6326

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April 22, 2008

Andrew Johnson  
Sea Otter Research and Conservation  
Monterey Bay Aquarium



**RE: Proposal for Investigating the Consequences of Coastal Contamination and Anthropogenic Stressors for Sea Otter Recovery**

Dear Andrew:



I am pleased to write a letter of support for the referenced proposal, which is being submitted to the California Coastal Conservancy. The Central Coast Long-term Environmental Assessment Network (CCLEAN) is a regional water-quality monitoring program in the Monterey Bay area. Among CCLEAN's objectives are the measurement of sources, loads and effects of contaminants discharged into Monterey Bay. CCLEAN has received two grants from the State of California to study the effects of anthropogenic contaminants on the southern sea otter. The sea otter is an ideal sentinel organism for ocean health, because it is restricted to nearshore areas and each otter eats 25% of its weight in prey each day, often including large amounts of filter-feeding invertebrates that tend to accumulate chemical and biological contaminants. Consequently, the sea otter is exposed to chemical and biological contaminants washing into nearshore waters from anthropogenic sources along the California coast. Your proposed work would leverage the results of our previous grant-funded work and provide invaluable information on the affects of anthropogenic contaminants on living otters.



We look forward to the contribution that this important project would make to address environmental problems in the Monterey Bay area.

Sincerely,

Dane Hardin  
Director

